



Annual **WATER**
QUALITY
REPORT

Reporting Year 2011

Presented By



PWS ID#: NC0113010

Meeting the Challenge

We are once again proud to present our annual water quality report covering all testing performed between January 1 and December 31, 2011. Over the years, we have dedicated ourselves to producing drinking water that meets all state and federal standards. We continually strive to adopt new methods for delivering the best-quality drinking water to you. As new challenges to drinking water safety emerge, we remain vigilant in meeting the goals of source water protection, water conservation, and community education while continuing to serve the needs of all our water users.

Please share with us your thoughts or concerns about the information in this report. After all, well-informed customers are our best allies.

Community Participation

You are invited to participate in our public forum and voice your concerns about your drinking water. The Concord City Council meets the second Thursday of each month at 6 p.m., in the Council Meeting Room at the Municipal Building, 26 Union Street South, Concord, NC.

Important Health Information

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants may be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The U.S. EPA/CDC (Centers for Disease Control and Prevention) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline at (800) 426-4791 or <http://water.epa.gov/drink/hotline>.

Substances That Could Be in Water

To ensure that tap water is safe to drink, the U.S. EPA prescribes regulations limiting the amount of certain contaminants in water provided by public water systems. U.S. Food and Drug Administration regulations establish limits for contaminants in bottled water, which must provide the same protection for public health. Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of these contaminants does not necessarily indicate that the water poses a health risk.

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals, in some cases, radioactive material, and substances resulting from the presence of animals or from human activity. Substances that may be present in source water include:

Microbial Contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, or wildlife;

Inorganic Contaminants, such as salts and metals, which can be naturally occurring or may result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming;

Pesticides and Herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses;

Organic Chemical Contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production and may also come from gas stations, urban stormwater runoff, and septic systems;

Radioactive Contaminants, which can be naturally occurring or may be the result of oil and gas production and mining activities.

For more information about contaminants and potential health effects, call the U.S. EPA's Safe Drinking Water Hotline at (800) 426-4791.

Where Does My Water Come From?

The City Of Concord obtains water from five different sources. The City has two water treatment plants, which draw water from three surface water reservoirs. The Coddle Creek Water Treatment Plant draws water from Lake Don T. Howell. The Hillgrove Water Treatment Plant draws water from Lake Concord, Lake Fisher, and Lake Don T. Howell. The City Of Concord also purchases water from the City of Kannapolis. For information on the quality of Kannapolis' water, contact Wilmer Melton, Director of Public Works, at (704) 920-4200. Plans are underway to ensure that we have an adequate water supply. Additionally, the City Of Concord can purchase water from the City of Charlotte. For information on the quality of Charlotte's water, contact Charlotte-Mecklenburg Utilities at (704) 391-5144.

System Improvement

The City Of Concord has constructed its eighth water tank at a site off Rock Hill Church Road. Activated in February, the tank has capacity for two million gallons of potable water. The tank meets demand, emergency water supply, and fire flow availability needs for the next ten to fifteen years.

What Are PPCPs?

When cleaning out your medicine cabinet, what do you do with your expired pills? Many people flush them down the toilet or toss them into the trash. Although this seems convenient, these actions could threaten our water supply.

Recent studies are generating a growing concern over pharmaceuticals and personal care products (PPCPs) entering water supplies. PPCPs include human and veterinary drugs (prescription or over-the-counter) and consumer products, such as cosmetics, fragrances, lotions, sunscreens, and house cleaning products. In the years from 2005 through 2009, the number of U.S. prescriptions increased 12 percent to a record 3.7 billion, while nonprescription drug purchases held steady around 3.3 billion. Many of these drugs and personal care products do not biodegrade and may persist in the environment for years.

The best and most cost-effective way to ensure safe water at the tap is to keep our source waters clean. Never flush unused medications down the toilet or sink. Instead, check to see if the pharmacy where you made your purchase accepts medications for disposal, or contact your local health department for information on proper disposal methods and drop-off locations. You can also go on the Web at www.Earth911.com to find more information about disposal locations in your area.

Lead in Home Plumbing

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. We are responsible for providing high-quality drinking water, but we cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at www.epa.gov/safewater/lead.

QUESTIONS?

For more information about this report, or for any questions relating to your drinking water, please call Christie Putnam, Water Resources Director, at (704) 920-5337.

Source Water Assessment Program (SWAP) Results

The North Carolina Department of Environment and Natural Resources (DENR), Public Water Supply (PWS) Section, Source Water Assessment Program (SWAP), conducted assessments for all drinking water sources across North Carolina. The purpose of the assessments was to determine the susceptibility of each drinking water source (well or surface water intake) to potential contaminant sources (PCSs). The results of the assessment are available in SWAP Reports that include maps, background information, and a relative susceptibility rating of higher, moderate, or lower.

The relative susceptibility rating of each source for the cities of Concord and Kannapolis was determined by combining the contaminant rating (number and location of PCSs within the assessment area) and the inherent vulnerability rating (i.e., characteristics or existing conditions of the well or watershed and its delineated assessment area.). The assessment findings are summarized in the table below:

Susceptibility of Water Sources to PCSs		
Source Name	Susceptibility Rating	SWAP Report Date
Lake Fisher/Coldwater Creek (Concord)	Moderate	March 2010
Lake Concord/Coldwater Creek (Concord)	Moderate	March 2010
Lake Don T. Howell (Concord and Kannapolis)	Moderate	March 2010
Kannapolis Lake (Kannapolis)	Moderate	March 2010
Second Creek/Back Creek (Kannapolis)	Moderate	March 2010
Yadkin River (Kannapolis)	Higher	March 2010

The complete SWAP Reports for the cities of Concord and Kannapolis may be viewed on the Web at www.deh.enr.state.nc.us/pws/swap. Please note that because SWAP results and reports are periodically updated by the PWS Section, the results available on this Web site may differ from the results that were available at the time this consumer confidence report was prepared. If you have any questions about the SWAP Report, please contact the Source Water Assessment staff by phone at (919) 715-2633.

A susceptibility rating of higher does not imply poor water quality, but rather the system's potential to become contaminated by PCSs in the assessment area.

LT2 Rule

The U. S. EPA has created the Long Term 2 Enhanced Surface Water Treatment Rule (LT2) for the sole purpose of reducing illness linked with the contaminant *Cryptosporidium* and other disease-causing microorganisms in drinking water. The rule will bolster existing regulations and provide a higher level of protection of your drinking water supply. To comply with the LT2 rule, the City Of Concord collected samples from its raw water sources during 2007 and 2008, for analysis of *Cryptosporidium* and *E. coli*. Samples were collected once a month from each raw water source that was being used that month. Here are the results:

Cryptosporidium: *Cryptosporidium* was detected in only one raw water sample out of 21 raw water samples; the one detection was found at Lake Fisher, at a level of 0.48 oocysts/L.

E. coli: The following averages and ranges were obtained from analyses of the following City Of Concord raw water sources (results shown are reported as MPN, colonies/100 mL of sample):

Raw Water Source	Average Result	Range of Results
Lake Don T. Howell	8.8	< 1 – 66.7
Lake Fisher	16.1	< 1 – 153
Lake Concord	14.5	4 – 24.9

It is important to note that these results are from our raw water source only and not our treated drinking water supply. For more information, contact the U.S. EPA's Safe Drinking Water Hotline at (800) 426-4791.

Sampling Results

During the past year, we have taken hundreds of water samples in order to determine the presence of any radioactive, biological, inorganic, volatile organic, or synthetic organic contaminants. The tables below show only those contaminants that were detected in the water. The state requires us to monitor for certain substances less often than once per year because the concentrations of these substances do not change frequently. In these cases, the most recent sample data are included, along with the year in which the sample was taken.

REGULATED SUBSTANCES													
				City of Concord		Hillgrove WTP		Coddle Creek WTP		City of Kannapolis			
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Chlorine (ppm)	2011	[4]	[4]	1.00	0.31–1.32	NA	NA	NA	NA	0.51	0.20–1.44	No	Water additive used to control microbes
Fluoride (ppm)	2011	4	4	NA	NA	0.89	NA	1.1	NA	0.47	NA	No	Erosion of natural deposits; Water additive that promotes strong teeth; Discharge from fertilizer and aluminum factories
Haloacetic Acids [HAAs] (ppb)	2011	60	NA	43.7	24.2–68.4	NA	NA	NA	NA	35.4	30.1–42.3	No	By-product of drinking water disinfection
TTHMs [Total Trihalomethanes] (ppb)	2011	80	NA	56.7	19–115	NA	NA	NA	NA	57.1	52.7–97.2	No	By-product of drinking water disinfection
Total Coliform Bacteria (% positive samples)	2011	5% of monthly samples are positive	0	0	NA	NA	NA	NA	NA	0	NA	No	Naturally present in the environment
Total Organic Carbon [TOC] ¹ (removal ratio)	2011	TT	NA	NA	NA	1.29 ²	1.16–1.54	1.14 ²	1.00–1.27	1.33	0.90–1.65	No	Naturally present in the environment
Turbidity ³ (NTU)	2011	TT = 1 NTU	NA	NA	NA	0.25	0.03–0.25	0.16	0.05–0.16	0.300	0.018–0.300	No	Soil runoff
Turbidity (Lowest monthly percent of samples meeting limit)	2011	TT = 95% of samples <0.3 NTU	NA	NA	NA	100	NA	100	NA	99.4	NA	No	Soil runoff
Tap water samples were collected for lead and copper analyses from sample sites throughout the community													
				City of Concord		City of Kannapolis							
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AL	MCLG	AMOUNT DETECTED (90TH%TILE)	SITES ABOVE AL/ TOTAL SITES	AMOUNT DETECTED (90TH%TILE)	SITES ABOVE AL/ TOTAL SITES	VIOLATION	TYPICAL SOURCE				
Copper (ppm)	2010	1.3	1.3	0.26	0/30	0.053 ⁴	0/30 ⁴	No	Corrosion of household plumbing systems; Erosion of natural deposits				
Lead (ppb)	2010	15	0	0	0/30	0 ⁴	0/30 ⁴	No	Corrosion of household plumbing systems; Erosion of natural deposits				

UNREGULATED SUBSTANCES								
		Hillgrove WTP		Coddle Creek WTP		City of Kannapolis		
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE
Sodium (ppm)	2011	26.4	NA	22.2	NA	29.94	NA	Naturally occurring
Sulfate (ppm)	2011	34.1	NA	34.2	NA	24.6	NA	Naturally occurring

INITIAL DISTRIBUTION SYSTEM EVALUATION (IDSE)				
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE
Haloacetic Acids [HAAs]–IDSE Results (ppb)	2008	46.1	ND–64.3	By-product of drinking water disinfection
TTHMs [Total Trihalomethanes]–IDSE Results (ppb)	2008	94.1	ND–161	By-product of drinking water disinfection

¹ Depending on the TOC in our source water, the system MUST have a certain % removal of TOC or must achieve alternative compliance criteria. If we do not achieve that % removal, there is an alternative % removal. If we fail to meet the alternative % removal, we are in violation of a Treatment Technique.

² Compliance method: Step 1.

³ Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of the effectiveness of our filtration system. The turbidity rule requires that 95% or more of the monthly samples must be less than or equal to 0.3 NTU.

⁴ Sampled in 2009.

⁵ We were required by the U.S. EPA to conduct an evaluation of our distribution system. This is known as an Initial Distribution System Evaluation (IDSE) and is intended to identify locations in our distribution system that have elevated disinfection by-product concentrations. Disinfection by-products (e.g., HAAs and TTHMs) result from continuous disinfection of drinking water and form when disinfectants combine with organic matter that naturally occurs in the source water.

Definitions

AL (Action Level): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow.

MCL (Maximum Contaminant Level): The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

MCLG (Maximum Contaminant Level Goal): The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

MRDL (Maximum Residual Disinfectant Level): The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

MRDLG (Maximum Residual Disinfectant Level Goal): The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

NA: Not applicable

ND (Not detected): Indicates that the substance was not found by laboratory analysis.

NTU (Nephelometric Turbidity Units): Measurement of the clarity, or turbidity, of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

ppb (parts per billion): One part substance per billion parts water (or micrograms per liter).

ppm (parts per million): One part substance per million parts water (or milligrams per liter).

removal ratio: A ratio between the percentage of a substance actually removed to the percentage of the substance required to be removed.

TT (Treatment Technique): A required process intended to reduce the level of a contaminant in drinking water.